

REMARKS

Claims 1-20 are now pending in the application. Minor amendments have been made to the specification and claims to simply overcome the objections to the specification and rejections of the claims under 35 U.S.C. § 112. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

OBJECTIONS IN THE RESPONSE TO ARGUMENTS

The Applicants have corrected the equation on page 12, line 21 of the application. Claim 1 has been amended to delete the “at least two” nodes recitation. The Applicants respectfully submit that Fig. 2 is a figure showing storage of the tree in the memory. Traversal of tree using Applicants’ invention is shown in Fig. 4b. Hence, there is no need to amend the Fig. 2 to show the traversal of the tree using the Applicants’ invention.

SPECIFICATION AND DRAWINGS

- a. The equation on page 12, lines 20-22 is now correct.
- b. Figure 2 has been amended so that the memory storage array and the tree on the right have correct correspondence. As explained above, the Applicants respectfully submit that Fig. 2 relates to storage layout of the tree in memory, while Fig. 4b shows the traversal aspects, both of which uses different examples to illustrate independent concepts of storage and traversal.
- c. The traversal algorithm on page 14 is explained next. The “active list” refers to the active nodes within a given column (page 14, lines 4-6) of the traversal tree as shown in Fig. 4b. At the first step the deepest active list would be the right-

most column of the tree in Fig. 4b. The bottom left to right arrow shows that the deepest node would in the rightmost column. Then at step 2 the list is traversed by setting B as the smallest rank node (shows by arrow '0' – 'start here' legend in Fig. 4b). Then as per step 3 the list of active nodes in the deepest column is traversed "in the increasing order", that is from arrow '0' to arrow '1' in the figure.

The Examiner has raised concern that there would be no child when the step 4 is reached. But the step 4 is a "for" loop, which as is well-known in the art that "for" loop executes only when the control condition is true. If at the first iteration of the whole algorithm the for-loop condition is not true (since there no child at the deepest node level) the 'for' loop of step 4, the control will jump to step 8 which decrements the depth moving to the column one position left of the deepest column and starts processing of the parent column of the deepest level.

- d. The tree 70 is self-explanatory in that it is a lexical diagram. The tree 70 as a lexical tree shows various words that can be recognized by different traversals of the tree. An example of one such traversal is states on page 17, lines 9-11 of the application. The tree 70 shows all possible lexical constructs, while the active node envelopes at 74 and 76 are illustrations of tree traversals on the time line 72, hence there is no one-to-one correspondence between tree 70 and envelopes 74 and 76.

The drawings stand objected to for certain informalities. Applicants have attached revised drawings for the Examiner's approval. In the "Replacement Sheets" Fig. 2 is replaced with appropriate corrections discussed above.

SPECIFICATION

The Applicants have corrected the equation on line 21, page 12 of the application.

CLAIM OBJECTIONS

- a. Claims 1 has been amended to delete the “at least two” nodes recitation.
The Applicants again respectfully submit that the tree structure shown in Fig. 2 is for storage purposes and not for traversal purposes. The Applicants further respectfully submit that the invention cannot be understood properly if one considers Fig. 2 for traversal purposes as this tree structure is only used to show how an exemplary tree would be stored in memory. Traversal using the Applicants invention is shown in Fig. 4b. The traversal path is clearly shown in Fig. 4b. As a further example, Figure 5 shows another illustration of multiple, sequential tree traversals on a time-scale. In context of Fig. 5, the specification at page 19, lines 4-5 clearly mentions that “the path always begins at the deepest nodes, i.e., the ones that are furthest from the root node”. Hence, there is no contradiction in the method of tree traversal.
- b. An illustration of traversal rules can be found in the algorithm described on page 14, lines 8-18. Hence, the Applicant respectfully submits that the recitation “a set of traversal rules” is well-supported in the specification.
- c. The Applicants have amended the claim 6 to depend on Claim 1 now.

REJECTION UNDER 35 U.S.C. § 112

Claims 1 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

As noted above, the Applicants have amended claim 1 to remove the recitation “at least two”. Hence, the objection should be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

Claims 1,3 and 6-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kao (U.S. Pat. No. 6,374,222) in view of Mitchell et al.(U.S. Pat. No. 6,574,595). This rejection is respectfully traversed.

Claims 2, 4 and 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kao (U.S. Pat. No. 6,374,222) in view of Mitchell et al.(U.S. Pat. No. 6,574,595) and further “in view of well known art” (MPEP 2144.03). This rejection is respectfully traversed.

Applicants have amended Claims 1 and 10. As amended, Claim 1 includes a recitation “said probability score being determined from the information sourced only from the child generation nodes, wherein said traversal algorithm only traverses said active nodes.” Kao and Mitchell do not disclose calculation of a probability score only from the child nodes. Kao suggests traversal in a backward manner from child to the root, but Kao does not disclose that traversal is effected by “said traversal algorithm only traversing said active nodes” where the active nodes are determined using a probability score “...sourced only from the child generation nodes”. Mitchell may

disclose the beam search algorithm but it fails to disclose that the threshold probabilities are determined using "information sourced only from the child generation nodes". Therefore, both Kao and Mitchell cannot be combined to render the claim 1 as obvious. Hence, the applicant respectfully requests the Examiner to withdraw the objection of Claim 1 and allow the same.

Claim 10 has also been amended. As amended, claim 10 recites "wherein said active nodes have a probability score above a pre-determined search threshold, said probability score being determined from the information sourced only from the child generation nodes". As noted above both Kao and Mitchell do not disclose a traversal technique that traverses only active nodes where the active nodes are determined using the information sourced only from the child generation nodes. Hence, the Applicants request the Examiner withdraw the rejection of Claim 10 and allow the same.

Claims 2-4, 6-9 depend on claim 1; and claims 11-20 depend on claim 10. Hence, claims 2-4, 6-9 and 11-20 are allowable for at least the same reasons as claim 10. Applicant respectfully requests the Examiner to withdraw the rejections of claim 1-4 and 6-20 and allow the same.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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